IEA Bioenergy – a summary and future goals related to "bioenergy, carbon sequestration and greenhouse gases"

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on behalf of IEA Bioenergy Task 38, with contributions from researchers in Australia, Austria, Canada, Croatia, Denmark, Finland, Italy, New Zealand, Norway, Sweden, The Netherlands, UK, and USA.
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IEA Bioenergy Task 38 on "Greenhouse Gas Balances of Biomass and Bioenergy Systems" builds on the achievements of its predecessor, Task 25 (Greenhouse Gas Balances of Bioenergy Systems). While Task 25 has been concentrating on scientific-technical and methodological issues, there has been increasing demand for information that aids decision makers in implementing programs to limit emissions or enhance removals of greenhouse gases such as carbon dioxide. Therefore Task 38 is concentrating more on the application of methods, and on aiding the implementation of mitigation projects and programs.

To facilitate the objectives of Task 38 one or two workshops are organized annually, enabling the exchange of ideas and experience. Position papers and joint publications on the role of bioenergy and carbon sinks in greenhouse gas mitigation are prepared. Models developed in national research programs are exchanged within the task. A bibliography on greenhouse gas balance of bioenergy, forestry, wood products, land use, and land-use change has been produced. The Task has also been contributing to the work of the Intergovernmental Panel on Climate Change, as well as to clarifying biomass-relevant provisions of the Kyoto Protocol.

The task has now begun applying the standard methodology, developed by the previous task for the assessment of greenhouse gas balances of bioenergy systems in comparison with fossil energy systems (Figure 1), to case studies in the participating countries. Baseline scenarios will also be developed for specific circumstances in some participating countries, for example the energy sector in potential host countries for climate-change mitigation projects under the flexibility mechanisms of the Kyoto Protocol. The Task will also create a project "clearing house" for bioenergy and carbon sequestration projects which is intended to facilitate collaboration between entities who would like to host projects and those who would like to fund projects in exchange for carbon credits.

The case studies will look at the comprehensive greenhouse gas balance with a focus on the right choice of system boundary, including leakage and permanence, assessment of a baseline scenario and additionality and how to optimize the greenhouse gas benefits and cost. The objective is to look at one or two case studies in each of the participating countries, covering a wide range of applications from heat, power, liquid biofuels, afforestation, reforestation and sustainable timber production. Those interested in contributing a case study please contact your appropriate National Team Leader. Each case study will be summarized and published as a color brochure.

This paper presents selected research results from countries participating in IEA Bioenergy Task 38, covering many of the aspects that the Task is involved in, such as: life cycle analysis, carbon modeling and accounting, climate-policy analyses, bioenergy systems modeling, case-study work, and assessment of land-use change and forestry activities under the relevant Articles of the Kyoto Protocol. The paper also presents and an overview of the future direction of the task.

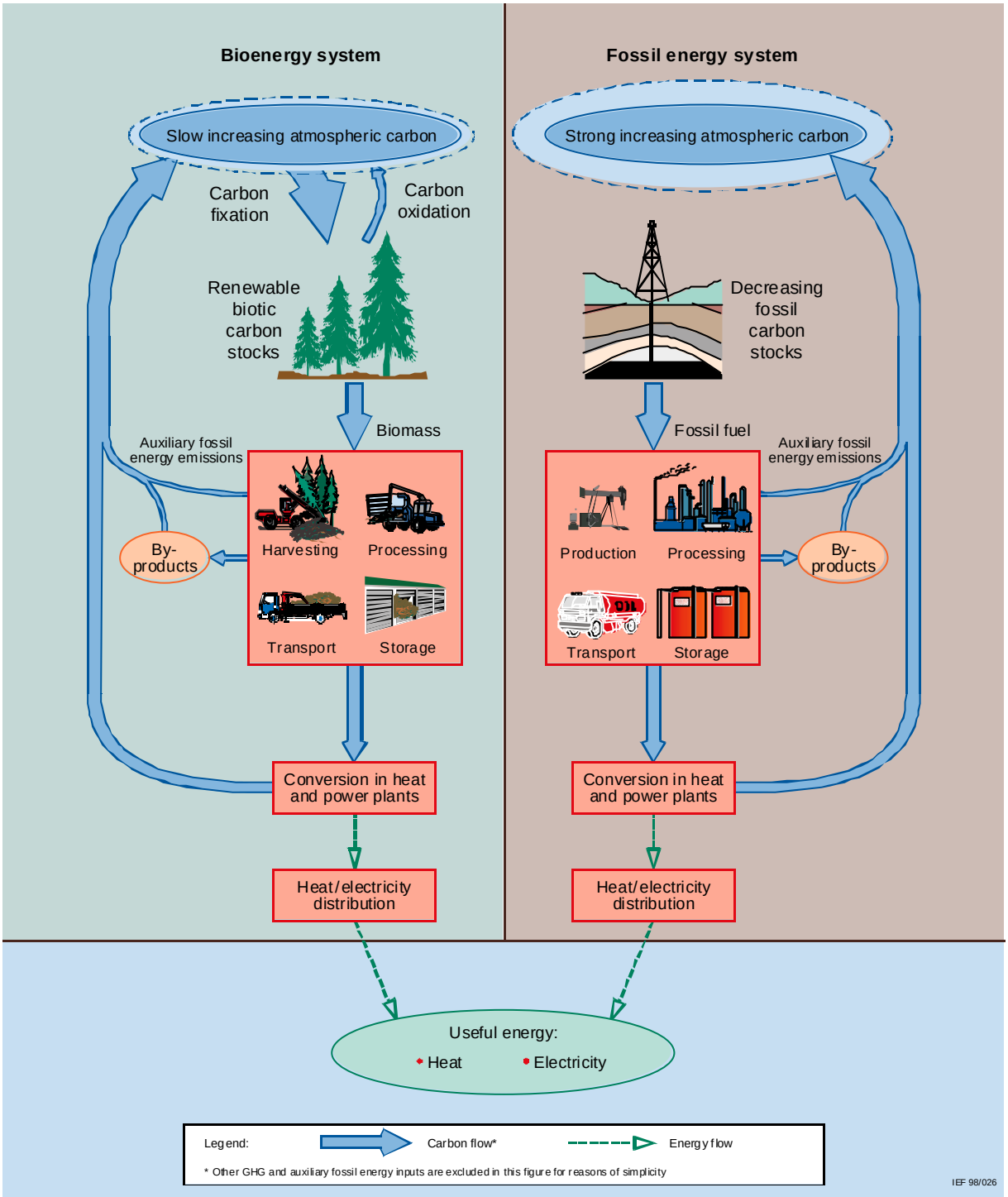

Figure 1. Standard methodology